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TRENDS IN DUCK BREEDING POPULATIONS, 1955-1990

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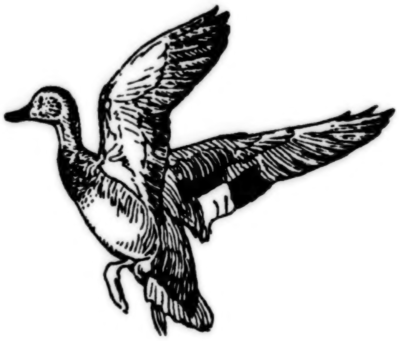

ABSTRACT: Changes in breeding population estimates for 10 species of ducks in 1990 as compared with other years were:

Species	Percent Change Between 1989 and 1990	Percent Change Between 1990 and the 1955-89 Average
Mallard	-4	-27
Gadwall	+23	+16
American wigeon	+3	-15
Green-winged teal	+12	+38
Blue-winged teal	-11	-41
Northern shoveler	+16	-4
Northern pintail	+5	-52
Redhead	-4	-16
Canvasback	+22	+7
Scaup	NC	-23
Total Ducks	+1 **	-22 ***

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** From Table 2; includes State totals for mallards and pintails.

*** From USFWS files; includes all dabblers, divers, and ruddy ducks and excludes scoters, eiders, oldsquaws, and mergansers in strata 1-50. Method maintains comparability of this information among years.

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15

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Water Conditions During the Spring Survey:

Southern Canada and the northcentral U.S.

In southern Canada, summer and fall rains in 1989 benefited topsoil moisture levels, and freeze-up dates were generally normal. By early winter, there were indications that the poor conditions of last year might be improved for the 1990 breeding season. However, by mid-winter, mild temperatures had reduced available snowcover and the probability of significant runoff. This discouraging outlook was reversed in March and April when many areas received substantial amounts of snowfall from major storm systems that passed through the region, promoting runoff and recharge of wetland basins and lowering soil moisture deficits. In the northcentral states, the lack of fall rains, little or no frost seal, low levels of winter precipitation, and the subsequent absence of any spring runoff, provided little useable habitat for arriving waterfowl in 1990.

Across Prairie Canada, the sequence of weather events since last year's survey produced a marked improvement in pond numbers (+66%), but the total remained well below the long-term average (-20%) (Table 1). The largest gain was observed in southern Manitoba (+131%), followed by southern Saskatchewan (+61%) and southern Alberta (+41%). However, despite the increases in southern Manitoba and southern Saskatchewan, wetland numbers were still below the 1961-89 average (-9% and -31%, respectively), reflecting the extent and severity of recent drought conditions. In sharp contrast to southern Canada, pond numbers in the northcentral states fell significantly from last year's improved conditions and remained well below the 1974-89 average (-48%). The Dakotas were particularly dry and counts in North Dakota reached an all-time low.

Northern Canada and Alaska

Following 3 consecutive dry winters in northern Saskatchewan and northern Manitoba, relatively heavy snowfalls improved water levels throughout the survey unit. Small rivers, ponds, and string bogs were filled to capacity. However, spring break-up was extremely late in 1990, as much as 10 days later than the delayed conditions of last year. During the survey, habitat conditions in central Alberta were good to excellent, but were drier in northern portions of the province and throughout much of the Northwest Territories. In contrast to areas further east, spring phenology was normal to slightly delayed. In western Ontario, habitat conditions were good throughout the unit, although high water and flooding were noted in several areas. Cool spring temperatures and thick ice cover on most lakes resulted in a 1-2 week delay in spring break-up across the region. In Alaska, including the North Slope, spring was early. Compared to the more severe flooding pattern of 1989, high water levels in 1990 were restricted to river drainages where some flooding normally occurs each year.

Since the spring survey, weather patterns have continued to favor prairie and parkland breeding areas, including the northern plains states and portions of northern forested regions. Normal to above-normal rainfall has occurred over widespread areas. In addition, relatively moderate temperatures, unlike those of a year ago, lowered the rate of evaporation and promoted vegetative growth. In some regions water levels have been maintained since May. In others, although basins have not been recharged, soil moisture deficits are reduced. However, portions of Alberta, Saskatchewan, Montana, and North Dakota, remain dry to extremely dry. Despite these encouraging changes in wetland availability in 1990, the impact of land-use practices during the recent drought is all too apparent. At the time of the survey, little residual nesting cover was present anywhere in the prairies and many fields contained water-filled depressions with little or no associated nesting habitat.

Breeding Population Estimates:

In 1990, the adjusted breeding population of all ducks (excluding scoters, eiders, oldsquaws, and mergansers) in the combined surveyed areas (Fig. 1) remained essentially unchanged (+1%) from 1989, and is 22% below the 1955-89 average. Estimates of the 1989 and 1990 breeding duck population by survey area are presented in Table 2. In 1990, the total duck breeding population estimate in survey strata 1-50 increased only 2% from 1989, resulting in the second lowest estimate on record. Increases were observed in Alaska - Yukon Territories, northern Saskatchewan - northern Manitoba - western Ontario, southern Alberta, southern Saskatchewan, southern Manitoba, Wyoming, and California. Total duck numbers decreased in northern Alberta-N.E. British Columbia-Northwest Territories, Minnesota, Nebraska, Montana, and North and South Dakota. Severe drought in the U.S. prairies (the Dakotas and Montana) contributed to a 36% decline in duck numbers in that area, resulting in the third lowest estimate on record. In the combined prairie-parkland area of southern Canada, where water conditions have improved since 1989, total duck numbers increased 34%. In the combined survey areas of Alaska and northern Canada, duck numbers in 1990 were similar to those in 1989.

Annual breeding population estimates for 10 principal species and percent changes in 1990 compared to 1989 and the 1955-89 average are presented in Table 3. Overall, mallard numbers decreased slightly (-4%) from last year and remain well below the 1955-89 average (-27%). Decreases were recorded in Alaska-Yukon Territories, Montana, North and South Dakota, Nebraska, and Minnesota (Table 4). Mallard numbers increased in southern Alberta, southern Saskatchewan, southern Manitoba, Colorado, and California. In the northcentral U.S., mallard numbers declined 60% from 1989 and were the lowest ever recorded. There was a concurrent increase in mallard numbers in Prairie Canada (+30%), possibly reflecting the improvement in pond numbers since the 1989 survey.

Northern pintail numbers improved only slightly from last year (+5%), and are still 52% below the long-term average (Table 5). The most substantial increase in pintail numbers occurred in southern Manitoba, where pond numbers increased 131% from 1989. Large increases were also noted in northern Saskatchewan - northern Manitoba - western Ontario, Montana, and Alaska - Yukon Territories. Pintail numbers declined 62% in North and South Dakota, reflecting the severe drought conditions in the U.S. prairies.

The blue-winged teal population declined 11% from last year (Table 6), falling below 3 million birds for the first time since surveys began in 1955. Blue-winged teal breeding numbers are now 41% below the long-term average. Substantial declines occurred both in northern Canada (-32%) and in the U.S. prairies (-48%). Drought conditions in the northcentral U.S. and improved water conditions in Prairie Canada resulted in a greater proportion of the blue-winged teal population being found in southern Canada than last year.

Of the remaining species in Table 3, only gadwall, canvasback, northern shoveler, and green-winged teal increased in numbers since 1989. However, only green-winged teal and gadwall are substantially above their long-term (1955-89) averages (+38% and +16%, respectively). All other duck species showed little change from 1989 levels. American wigeon and redhead numbers continue to be below the long-term average (-15% and -16%, respectively). The numbers of scaup reached an all-time low for the second consecutive year and remain 23% below the long-term average.

Table 1. Summary of the number of May ponds (adjusted for visibility) in portions of Prairie Canada and the northcentral U.S., 1989 and 1990 (estimates in thousands).

Area	1989	1990	% Change	% Change From Long-term Average*
S. Alberta	548.9	771.6	+41	-2
S. Saskatchewan	860.9	1,382.8	+61	-31
S. Manitoba	286.5	662.5	+131	-9
Prairie Canada	1,696.3	2,816.9	+66	-20
Montana	337.8	246.0	-27	-7
North Dakota	448.0	185.2	-59	-71
South Dakota	504.1	259.9	-48	-38
Northcentral U.S.	1,289.9	691.1	-46	-48

* Prairie Canada, 1961-89; northcentral U.S., 1974-89.

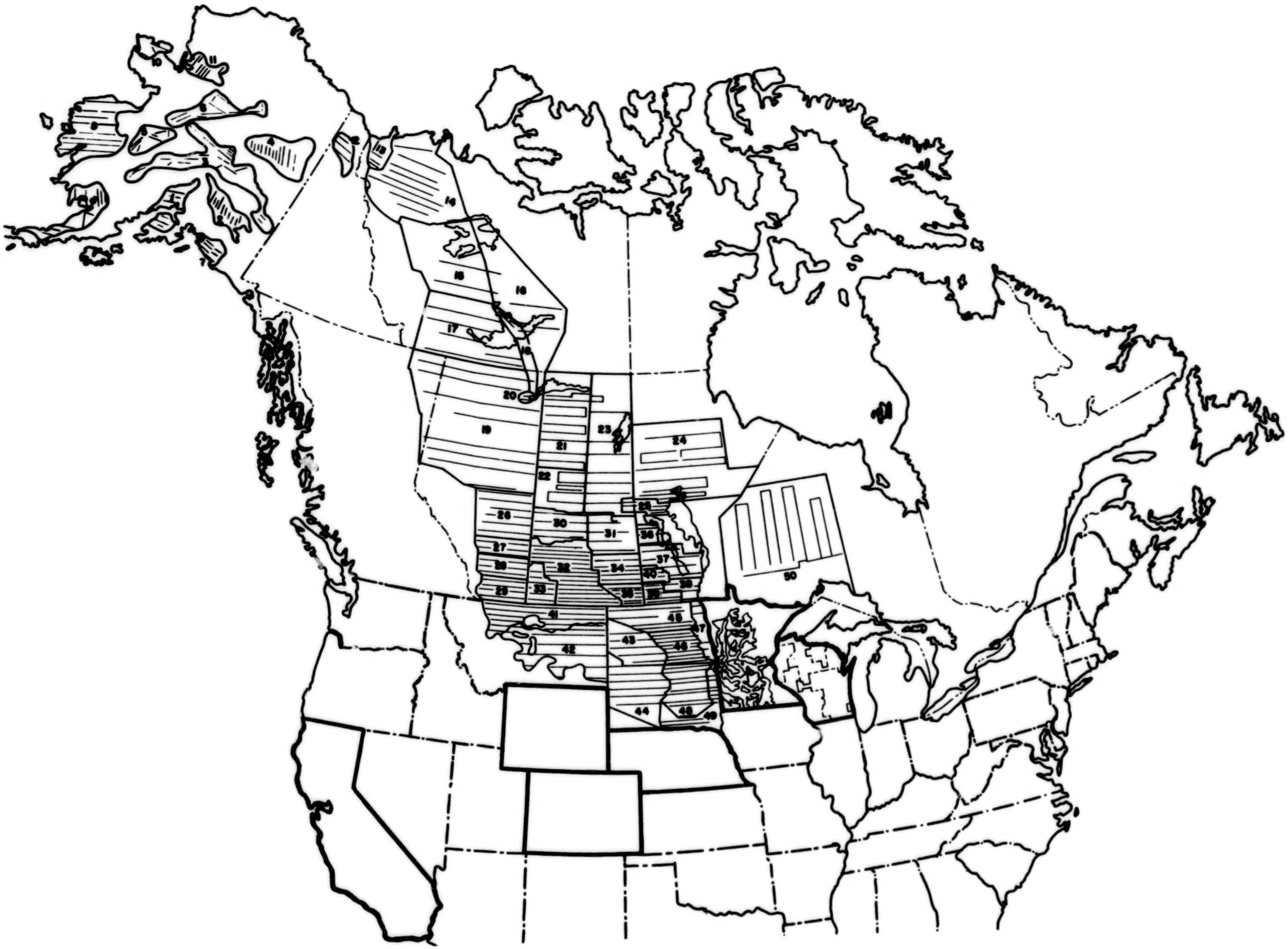

Figure 1. Transects and strata for principal areas of waterfowl breeding population surveys. States conducting independent, annual surveys are in bold.

6

Table 2. Duck breeding population estimates (in thousands), adjusted for birds present that were not seen by aerial survey crews, 1989 and 1990 (excludes scoters, eiders, oldsquaws, and mergansers).

Survey Area	1989	1990	Percent Change
Alaska-Yukon Territories (Old Crow Flats)	4,495	5,107	+14
N. Alberta - N.E. British Columbia - Northwest Territories	7,576	6,289	-17
N. Saskatchewan-N. Manitoba - W. Ontario*	3,986	4,421	+11
S. Alberta	2,538	3,510	+38
S. Saskatchewan	3,915	5,063	+29
S. Manitoba	1,125	1,556	+38
Montana	883	705	-20
Wyoming	266	382	+44
Colorado	123	132	+7
North Dakota	1,874	1,309	-30
South Dakota	2,390	1,256	-47
Nebraska	137	81	-41
Minnesota	1,036	887	-14
California	160	199	+24
Wisconsin	398	395	-1
TOTAL	30,902	31,292	+1

* W. Ontario was surveyed in 1989 and 1990.

Table 3. Breeding population estimates for 10 species of ducks, 1955-90 (in thousands)*.

Year	Mallard	Gadwall	American wigeon	Green-winged teal	Blue-winged teal	Northern shoveler	Northern pintail	Redhead	Canvasback	Scaup
1955	10,345	1,106	3,333	2,076	6,436	1,965	9,251	733	595	7,100
1956	11,711	1,202	3,712	1,898	6,267	2,084	10,124	928	692	6,595
1957	10,946	1,102	3,208	1,293	5,449	1,744	6,856	684	600	6,535
1958	12,904	687	3,372	1,618	5,799	1,515	6,889	524	713	6,040
1959	10,292	683	3,779	3,153	5,300	1,649	7,228	641	481	8,220
1960	8,206	873	3,165	1,630	4,303	1,859	5,769	542	575	5,566
1961	8,290	1,422	3,219	2,216	4,833	1,625	4,860	437	396	6,764
1962	6,144	1,610	2,721	1,119	3,890	1,633	4,299	664	385	6,398
1963	7,360	1,578	2,209	1,754	4,587	1,435	4,361	396	523	6,564
1964	6,974	1,223	2,630	2,051	4,943	1,685	4,111	560	658	6,326
1965	5,948	1,692	2,695	1,526	4,628	1,607	4,301	568	505	5,383
1966	7,401	1,976	2,901	2,219	5,616	2,272	5,777	747	683	5,421
1967	8,205	1,638	2,637	1,944	4,715	2,244	5,870	846	556	5,877
1968	7,586	2,098	2,783	1,805	3,697	1,811	4,225	502	557	5,971
1969	8,065	1,837	3,192	1,991	4,514	2,150	6,390	759	530	6,338
1970	10,379	1,698	3,752	2,259	5,633	2,269	7,004	834	601	6,930
1971	9,843	1,733	3,425	2,352	5,426	2,052	6,291	693	441	6,149
1972	9,867	1,776	3,428	2,407	5,673	2,505	7,875	489	429	9,527
1973	8,781	1,198	3,665	2,444	4,866	1,657	5,114	754	696	7,535
1974	7,392	1,562	3,003	2,221	5,437	2,060	7,165	613	493	7,045
1975	8,109	1,672	2,862	2,038	6,441	1,994	6,387	974	706	7,846
1976	8,637	1,478	2,699	1,844	5,023	1,818	6,045	946	686	6,973
1977	8,226	1,546	2,678	1,952	4,626	1,616	4,971	688	702	7,490
1978	7,695	1,593	3,808	2,978	4,497	2,162	5,664	833	423	7,125
1979	8,444	1,889	3,388	2,920	5,278	2,555	6,070	774	606	9,135
1980	8,003	1,459	3,857	2,925	4,903	2,050	5,420	1,146	688	7,690
1981	6,757	1,479	3,555	2,515	4,076	2,403	4,227	825	594	7,253
1982	6,684	1,690	3,159	2,247	3,879	2,540	4,112	674	543	6,549
1983	7,107	1,536	2,923	2,574	3,381	2,237	4,086	866	528	8,788
1984	5,974	1,799	3,979	1,804	3,870	2,222	3,664	849	569	8,402
1985	5,475	1,410	2,506	1,873	3,756	1,925	2,935	701	411	6,235
1986	6,303	1,590	2,446	2,588	4,664	2,403	3,201	956	442	6,252
1987	6,691	1,705	2,734	3,041	3,618	2,229	3,137	767	478	6,261
1988	6,550	1,528	3,168	3,143	3,652	2,157	2,577	846	435	5,480
1989	6,119	1,423	2,577	2,697	3,199	1,636	2,471	628	488	5,299
1990	5,897	1,745	2,659	3,032	2,832	1,904	2,590	606	593	5,277
Goals**	8,700	1,600	3,300	2,300	5,300	2,100	6,300	760	580	7,600
1955-89 Avg.	8,098	1,500	3,119	2,203	4,768	1,993	5,392	725	555	6,830
Percent Change in 1990 From:										
1989	-4	+23	+3	+12	-11	+16	+5	-4	+22	NC
1955-89 Avg.	-27	+16	-15	+38	-41	-4	-52	-16	+7	-23

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* All duck indexes adjusted for visibility bias.

** Breeding duck population goals, from North American Waterfowl Management Plan (FWS-CWS 1986).

Table 4. Mallard breeding population estimates (in thousands), adjusted for birds present that were not seen by aerial survey crews, 1989 and 1990.

Survey Area	1989	1990	Percent Change
Alaska-Yukon Territories (Old Crow Flats)	354	314	-11
N. Alberta - N.E. British Columbia - Northwest Territories	946	922	-3
N. Saskatchewan-N. Manitoba - W. Ontario *	1,152	1,155	NC
S. Alberta	596	779	+31
S. Saskatchewan	946	1,254	+33
S. Manitoba	242	293	+21
Montana	283	148	-48
Wyoming	85	88	+4
Colorado	48	56	+17
North Dakota	410	142	-65
South Dakota	480	184	-62
Nebraska	19	15	-21
Minnesota	273	232	-15
California	125	160	+28
Wisconsin	160	155	-3
TOTAL	6,119	5,897	-4

* W. Ontario was surveyed in 1989 and 1990.

Table 5. Northern pintail breeding population estimates (in thousands), adjusted for birds present that were not seen by aerial survey crews 1989-1990 (comparable areas only).

Survey Area	1989	1990	Percent Change
Alaska - Yukon Territories (Old Crow Flats)	1,138	1,420	+25
N. Alberta - N.E. British Columbia - Northwest Territories	290	227	-22
N. Saskatchewan - N. Manitoba - W. Ontario*	15	26	+73
S. Alberta	314	318	+1
S. Saskatchewan	349	337	-3
S. Manitoba	17	55	+224
Montana	58	81	+40
Minnesota**	26	26	NC
North Dakota	112	48	-57
South Dakota	152	52	-66
TOTAL	2,471	2,590	+5

* W. Ontario was surveyed in 1989 and 1990.

** Average used in Minnesota.

Table 6. Blue-winged teal breeding population estimates (in thousands), adjusted for birds present that were not seen by aerial survey crews, 1989 and 1990 (comparable areas only).

Survey Area	1989	1990	Percent Change
Alaska - Yukon Territories (Old Crow Flats)	1	0	NC
N. Alberta - N.E. British Columbia - Northwest Territories	307	243	-21
N. Saskatchewan - N. Manitoba - W. Ontario*	453	271	-40
S. Alberta	418	521	+25
S. Saskatchewan	588	876	+49
S. Manitoba	176	269	+53
Montana	66	76	+15
North Dakota	336	230	-32
South Dakota	854	346	-59
TOTAL	3,199	2,832	-11

* W. Ontario was surveyed in 1989 and 1990.

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